ORIGINAL ARTICLE

The management of sexually transmitted infections by Australian general practitioners

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Accepted for publication 19 November 2003
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Objectives: To ascertain how frequently general practitioners (GPs) in Australia encounter sexually transmitted infections (STIs), how STIs are managed in general practice, and the characteristics of GPs who manage STIs.

Methods: Data were derived from the Bettering the Evaluation and Care of Health (BEACH) database. BEACH is a cross sectional survey of national GP activity. Approximately 1000 GPs per year each record details of 100 consecutive patient encounters. Details from April 1998 to March 2001 about frequency and pattern of STIs managed and the characteristics of GP managing them were analysed using SAS.

Results: 3030 GPs provided data on 303 000 encounters. Only 521 problems managed were STIs. Viral STIs were most frequently managed including genital herpes (0.08 per 100 encounters), genital warts (0.07 per 100 encounters). Gonorrhoea, syphilis, chlamydia, and trichomoniasis were rarely managed. Medication was prescribed at a rate of 56.1 per 100 STI contacts (95% CI 50.4 to 61.7). Antivirals were the most common followed by topical chemotherapeutics. GPs managing STIs were significantly younger and more likely to be female, urban, have fewer years in practice, work fewer sessions a week, work in a larger practice, have graduated in Australia, and hold the FRACGP (all p<0.005) than those who did not.

Conclusion: Management of diagnosed STIs forms only a small part of a GP's workload in Australia. Genital herpes and warts are the most commonly managed conditions. GPs managing STIs are different from those who do not. Strategies to improve diagnosis, management, and screening should be evaluated.

I n Australia sexual health services are provided by a number of agencies including sexual health clinics, family planning clinics, gynaecologists, infectious disease specialists, Aboriginal Medical Services (AMS), and general practitioners (GPs). GPs are ideally placed to have a major impact on sexually transmitted infection (STI) prevention, diagnosis, and management, with over 80% of Australians attending a GP in any one year.[1] However, it is not known how frequently STIs are managed in general practice.

Limited general practice surveillance data are available from Australia. A questionnaire based random sample of 520 Victorian GPs found that 19% reported managing an STI daily or weekly, 36% monthly, and 46% infrequently or never. Of STIs managed in the past month, 44% were human papillomavirus, 30% genital herpes, 14% genital chlamydia, and 12% non-specific urethritis.[2] A study from Queensland of GPs with previous experience in diagnosing and managing STIs found that 60% reported having seen over 20 patients at risk of an STI in the previous 12 months and more than 90% had diagnosed at least one case of ano-genital warts, genital herpes, or chlamydia with 25% diagnosing more than six cases.[3] Both studies are small, not nationally representative and used retrospective questionnaires. The data are subjective and dependent on the GP's estimate of encountered cases. These are often overestimates.[4]

Data obtained at the time of patient encounter provides a better reflection of the actual situation. The Australian Morbidity and Treatment survey in general practice was carried out in 1991. Four hundred and ninety five GPs recorded details of all patient encounters for two 1 week periods, 6 months apart. Genital and reproductive problems were the fifth (10.1%) and eighth (7.0%) most frequently managed problem for women, while genital problems were the twelfth (2.5%) most common for men.[5] However, these figures are only an indicator of STIs managed as they include well check-ups and symptoms or diagnoses that may not be associated with STIs.

International research in this field is also limited. Studies from the United Kingdom have estimated that STIs are managed infrequently in general practice[6–8] and based on the proportion of laboratory confirmed chlamydial infections that originate from GPs, it has been concluded that GPs seldom request chlamydia tests.[9] The information and statistics division of the National Health Service in Scotland (ISD) has a continuous morbidity recording system consisting of 53 practices (population 307 741). These practices record the reason for contact for all direct encounters. In the year ending March 2000 there were 133 contacts for genital herpes with a prevalence rate of 0.6 per 1000 population, 462 contacts for genital warts with a prevalence of two per 1000, and 24 contacts for gonorrhoea with a prevalence of 0.2 per 1000.[10] These figures are based on presumed infection and, because of the small numbers of cases, have considerable imprecision. In the United Kingdom, lack of adequate data from primary care is a major concern,[11–13] particularly in light of the national strategy for sexual health and HIV that recommends an increasing role for general practice.[14]

Analysis of the frequency of STI problems managed by Australian GPs has been made possible by access to a database that records data from an ongoing cross sectional survey of GP activity. The aims of this study were to ascertain how frequently Australian GPs manage STIs, how STIs are managed in general practice, and to determine the characteristics of GPs who manage them.

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Abbreviations: AMS, Aboriginal Medical Services; BEACH, Bettering the Evaluation and Care of Health; GPs, general practitioners; STIs, sexually transmitted infections

METHODS

The database

Bettering the Evaluation and Care of Health (BEACH) is an ongoing cross sectional encounter based survey of general practice activity throughout Australia. The survey was established in April 1998 and the methods have been described in detail elsewhere.[15] In summary, each GP in a random sample of approximately 1000 practising GPs per year, completes details about 100 consecutive GP-patient encounters on standardised paper recording forms. The encounter maybe the first visit for a particular problem or a follow up visit relating to a previously diagnosed condition.

Data elements include GP age, sex, years in practice, sessions worked per week, size of practice, practice location, country of graduation, postgraduate general practice training, and FRACGP status. Patient information includes age, sex, cultural background, and up to three reasons for encounter. Up to four problems/diagnoses can be recorded as managed at the encounter. Management data include medication, pathology tests, imaging requests, and referrals. Patient reason for encounters and problems managed were classified according to the International Classification of Primary Care (version 2) (ICPC-2).[16] Medications were classified according to an in-house classification, the Coding Atlas for Pharmaceutical Substances (CAPS) and to the Anatomical Therapeutic Chemical Classification Index.[17]

For the purpose of this study we have analysed only the actual STI diagnoses—syphilis, gonorrhoea, genital herpes, condylomata accuminata, and female trichomoniasis, and chlamydia. Separate codes for male chlamydia are not present in ICPC-2. As yet undiagnosed symptom labels were not included.

BEACH data collected during the 36 month period from April 1998 to March 2001 were analysed. Data underwent post-stratification weighting by age (stratified by sex) and for activity level of participating GPs in order to improve representativeness of the data set.

Statistical methods

The database was analysed using SAS version 6.12[18] with the encounter being the primary unit of analysis. Where events can only occur once in a consultation (for example, age, sex, Medicare item number) percentages are used to describe the distribution. If an event can occur more than once (for example, reasons for encounter, problem managed, or medications), then rates per 100 encounters are used. Secondary analysis of the data used χ^2 to calculate differences in GP characteristics and paired t test to calculate differences in patient age groups.

RESULTS

In all, 3030 GPs provided data on 303 000 encounters. There were only 521 STIs recorded (0.17 per 100 encounters). Viral STIs were by far the most common and included genital herpes (0.08 per 100 encounters) and genital warts (0.07 per 100 encounters). Bacterial and protozoal STIs were managed rarely—gonorrhoea (0.005 per 100 encounters), female trichomoniasis (0.005 per 100 encounters), female chlamydia (0.004 per 100 encounters), and syphilis (0.003 per 100 encounters). The breakdown by sex for the viral STIs revealed a preponderance of cases in women—genital herpes (2:1), and genital warts (1.3:1). Gonorrhoea was managed on only 15 occasions (six women, nine men) and syphilis on nine occasions (seven women, two men).

National annual estimates during this 3 year period calculated using the BEACH data were 39 466 encounters for genital herpes, 24 933 encounters for genital warts, 1733 encounters for female trichomoniasis, 1700 encounters for gonorrhoea, 1266 encounters for female chlamydia, and 1033

for syphilis. Because of the small number of cases of bacterial and protozoal STIs, these figures should be interpreted with caution.

Patient characteristics

Of the 521 patients who had an STI managed, 329 (63.1%) were female and 189 (36.3%) male (missing which sex in three). In 350 (67.2%) patients the problem had previously been managed by a medical practitioner and 459 (88.1%) had been seen previously at the practice. Those in the 25–44 year old age group accounted for about half of both the men (56.6% n = 107) and women (50.5% n = 166). One in three (30.4% n = 100) of the women and one in five (19.6% n = 37) of the men were aged between 15 and 24. Age was missing for four patients. Thirty three (6.3%) were identified as being from a non-English speaking background and five as Aboriginal people or Torres Strait Islanders. The sex breakdown was not significantly different from the total of the patients at BEACH encounters (men 36.49% v 41.12%; women 63.51% v 58.88%: p = 0.112). However, STI patients were significantly younger than the total sample in BEACH (p = 0.005).

Reasons for encounter (RFE)

Two hundred and eighty four (54.8%) patients gave only one RFE, 145 (28.0%) gave two RFEs, and 89 (17.2%) three RFEs. Patients often described the RFEs in diagnostic terms— female condylomata acuminata (12.5 per 100 encounters, 95% CI 9.5 to 15.5), male condylomata acuminata (11.7 per 100 encounters, 95% CI 9 to 14.5), female genital herpes (10.4 per 100 encounters, 95% CI 7.8 to 12.9), and male genital herpes (5.57 per 100 encounters, 95% CI 3.9 to 7.3). Other frequent RFEs included a request for prescriptions (7.5 per 100 encounters, 95% CI 5.4 to 9.6), test results (6.7 per 100 encounters, 95% CI 4.8 to 8.6), female genital check-up (6.1 per 100 encounters, 95% CI 4.3 to 8.0).

Patient management

Although genital herpes was the most common STI to be managed, only five viral cultures, one herpes simplex virus (HSV) culture and three HSV serology tests were carried out during this time. Other tests were also uncommon and included 33 vaginal swabs for microscopy and culture, four cervical swabs, three urethral or penile swabs, 10 chlamydia tests, eight HIV, two syphilis, and two hepatitis B serology tests.

Medication was prescribed at a rate of 56.1 per 100 STIs (95% CI 50.4 to 61.7). Antivirals accounted for 58.6% of medications (95% CI 51.6 to 65.5) and chemotherapeutics for topical use 16.7% (95% CI 0 to 36.4), reflecting the STIs encountered. Systemic aciclovir was prescribed as often as valaciclovir (n = 64; 22.0% of STIs v n = 67; 23.0%). Famciclovir, however, was only prescribed on 27 occasions (9.3%). Antibiotics, which were prescribed infrequently, included tinidazole (n = 9; 3.1% of STIs), metronidazole (n = 7; 2.4%), procaine penicillin (n = 4; 1.4%), ciprofloxacin (n = 4; 1.4%), azithromycin (n = 4; 1.4%), ceftriaxone (n = 3; 1.0%), doxycycline (n = 3; 1.0%), and amoxycillin (n = 2; 0.7%). At 20.0% of contacts with STI (95% CI 6.6 to 33.3) excision, destruction, or cauterisation took place. Counselling, education, or advice was documented at a rate of only 33 per 100 STI contacts. Of the 521 STIs managed, 34 were referred, 11 to gynaecologists, four to sexual health physicians, three to dermatologists, surgical specialist or non-specified specialist, two to urologists, a health professional, hospital or a clinic, and one to an obstetrician or a physician.

GP characteristics

The characteristics of the 417 GPs (17.1%) who documented the management of the 521 STIs are compared with all BEACH GPs in table 1. GPs who diagnosed STIs were more likely to be female, younger, urban, have fewer years in practice, work fewer sessions per week, work in a larger group practice, have graduated in Australia and hold a fellowship of the RACGP than the BEACH cohort as a whole.

DISCUSSION

This study is the first national representative study of STI management in general practice in Australia. The results show that Australian GPs manage STIs infrequently and are more likely to deal with viral STIs than bacterial STIs. Each of the more frequently managed STIs was managed at rates of less than one per 1000 GP-patient encounters. In addition, the characteristics of general practitioners managing STIs were significantly different to those of the total BEACH GP sample. GPs managing STIs were more likely to be younger, female, work fewer sessions per week, work in multi-practitioner practices, have graduated in Australia, and hold a fellowship of the Royal Australian College of General Practitioners (FRACGP).

There are a number of possible reasons for the low management rate of STIs in general practice suggested by this study. Firstly, the prevalence of bacterial STIs in the community may be low and the frequencies in this study simply a reflection of this. This may be true for gonorrhoea and syphilis in the general population. Certain minority groups in Australia, in particular homosexual males and some Indigenous communities, have been noted to have higher levels of bacterial STIs than documented in the general population.[19][20] These groups may be more likely to attend specialist services such as sexual health clinics or AMS or alternatively attend GPs with a specialised interest in the area. Secondly, these data only look at a snapshot of a patient's overall management. GPs may be labelling the symptom or a syndrome such as cervicitis or urethritis and treating empirically rather than isolating a pathogen to give the definitive diagnosis. Evidence from other studies suggests that presumptive treatment is common practice and confirmatory laboratory tests are not always done.[4] This study did not include symptom labels and this is reflected in the relatively low pathology test rate. Higher rates could be expected in the diagnostic rather than the post-diagnostic phase. Thirdly, bacterial STIs are often asymptomatic, especially chlamydia and gonorrhoea in females. In males urethral gonorrhoea is usually symptomatic; however if the infection is either rectal or pharyngeal this is not the case. Without screening, therefore, the infection will not be identified and not treated. Barriers to screening identified in general practice include the health seeking behaviour of those at highest risk,[21] lack of opportunistic sexual history taking and therefore failure to identify individuals at risk,[22] gaps in GPs' knowledge, attitudes, behaviour, and practice,[4][23] lack of appropriate facilities for screening and "Medicare barriers," in particular discouragement of screening and the "three test rule"—where the pathology laboratory is only able to claim a rebate for the three most expensive tests performed on a patient on any one day.

What steps should be taken in order to optimise the diagnosis and management of STIs in general practice?

Table 1 Comparison between general practitioners (GPs) who managed STIs and the BEACH cohort

GP characteristics	STI GPs	BEACH GPs	p Values
Sex			
Male	205 (49.4%)	2091 (69.4%)	<0.005
Female	210 (50.6%)	922 (30.6%)	
Missing	2	17	
Age			
<35	42 (10.1%)	217 (7.2%)	<0.005
35–44	162 (39.0%)	978 (32.5%)	
45–54	125 (30.1%)	995 (33.0%)	
>55	86 (20.7%)	823 (27.3%)	
Missing	2	17	
Years in general practice			
<10	126 (30.7%)	696 (9.2)	<0.005
>10	286 (69.4%)	1093 (76.8%)	
Missing	5	26	
Sessions per week			
<5	86 (21.2%)	439 (14.7%)	<0.005
6–10	273 (66.6%)	2017 (67.3%)	
>10	50 (12.2%)	539 (18.0%)	
Missing	7	35	
Size of practice			
Solo	45 (11.2%)	539 (18.5%)	<0.005
2–4 GPs	153 (38.0%)	1146 (39.2%)	
>4 GPs	205 (50.9%)	1236 (42.3%)	
Missing	14	109	
Location of practice			
Urban	317 (76.0%)	2254 (74.4%)	NS
Rural	100 (24.0%)	776 (25.6%)	
Country of graduation			
Australia	324 (79.0%)	2239 (74.5%)	<0.005
Other	65 (20.8%)	767 (25.6%)	
Missing	7	24	
RACGP training programme	9 (2.2%)	351 (2.4%)	<0.005
Missing	14	17	
Hold FRACGP	169 (41.4%)	902 (30.1%)	<0.005
Missing	15	31	

RACGP = Royal Australian College of General Practitioners; FRACGP = Fellow of the Royal College of General Practitioners.

Improving public education and knowledge may encourage those at risk, whether they have symptoms or not, to seek screening and if necessary treatment. Strategies to ensure that the majority of GPs have the skills, knowledge, and confidence to manage STIs need to be developed and evaluated. Finally, in Australia, a national STI control strategy needs to be developed and initiated. The aims of this strategy should include—reducing the incidence of clinically apparent and undiagnosed STIs, reducing the transmission of STIs, and reducing the social stigma associated with STIs. Elements of this strategy should include providing clear information to the general public to enable people to make informed decisions about diagnosis, treatment and prevention of transmission, providing a range of easily accessible screening and management options (including general practice) for individuals with suspected STIs, setting standards for STI screening and management, and establishing priorities for future research thereby improving the evidence base for good practice in sexual health.

Although medical services differ around the world, we believe that the findings from this study will have important implications in assisting the development of sexual health services in general practice in many parts of the world and, in particular, in the United Kingdom where the recently published House of Commons Health Select Committee inquiry into sexual health concluded that sexual health services were a shambles.[24] In addition, despite the government's sexual health strategy[10] calling for more sexual health services to be delegated to primary care trusts (that is, GPs), there is little evidence to suggest that this is occurring.[24]

ACKNOWLEDGEMENTS

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